



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

H.D

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,440	12/11/2003	Hemanth Sampath	MP0389	4615
26200	7590	01/09/2008		
FISH & RICHARDSON P.C. P.O BOX 1022 MINNEAPOLIS, MN 55440-1022			EXAMINER HOM, SHICK C	
			ART UNIT	PAPER NUMBER
			2616	
			MAIL DATE	DELIVERY MODE
			01/09/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/734,440	Applicant(s) SAMPATH ET AL.	
	Examiner Shick C. Hom	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-76 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12-27, 30-45, 48-63 and 66-76 is/are rejected.
- 7) ☒ Claim(s) 10, 11, 28, 29, 46, 47, 64 and 65 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 November 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>11/1/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 11/1/07 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a test transmission at a second data rate is not required to evaluate and select the second data rate) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that the prior art does not teach or suggest generating a confidence value for each of a plurality available data rates using the received signal quality value and the packet loss indicator value is not persuasive because Mahany et al. in col. 16 lines 4-9 recite the selection of data rate being based upon average value of signal strength, and col. 17 lines 5-13 recite selection of data rate being based

on error percentage above a threshold level clearly reads on the confidence value for the data rates as claimed.

In response to applicant's argument that the prior art does not teach or suggest generating an adjustment value for the received signal quality value from the packet loss indicator value and the use of a table are not persuasive because Mahany et al. in col. 13 lines 56-67 recite the signal level adjust circuit reads on generating an adjustment value as claimed and col. 25 lines 59-67 recite the use of a stored table.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-9, 12-27, 30-45, 48-63, and 66-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mahany et al. (5,483,676) in view of Yavuz et al. (7,075,913).

Regarding claims 1, 19, 37, and 55:

Mahany et al. disclose a method, apparatus, and computer-readable medium (col. 15 lines 11-20 recite the software control) comprising steps and means for determining a received signal quality value from received data (col. 22 lines 11-22 recite determining the quality of the radio link by measuring the signal strength and jitter of the received data); determining a data loss indicator value from transmitted data (col. 1 lines 57-67 recite no loss of information content for acceptable signal quality at the receiver); and selecting a data rate in response to the received signal quality value and the

data loss indicator value (col. 14 line 62 to col. 15 line 5 recite the determined signal quality indication being used to select the data rate).

Regarding claims 2, 20, 38, and 56:

Mahany et al. disclose wherein the received signal quality value is selected from an RSSI (Received Signal Strength Indicator) value, an SNR (signal to noise ratio) value, an SINR (signal to interference noise ratio) value, and a SQM (signal quality measure) value, the SQM value comprising a mean of the SNRs across all of a plurality of tones (col. 21 lines 1-7 recite signal quality being based on the received signal strength indicator).

Regarding claims 3, 21, 39, and 57:

Mahany et al. disclose wherein the data loss indicator value is selected from a retry counter value, a bit-error update value, a data error update value, a symbol error update value, and a CRC (Cyclic Redundancy Check) indicator value (col. 17 lines 5-13 recite the comparing the total number of error against a threshold value to make data rate decision; col. 19 line 7-17 recite using bit error rate BER; and col. 28 line 62 to col. 29 line 5 recite the use of Cyclic Redundancy Check).

Regarding claims 4, 23, 40, and 58:

Mahany et al. disclose wherein said selecting comprises selecting a data rate from a plurality of available data rates (col. 2 lines 35-57 recite switching between two or more data rates).

Regarding claims 5, 23, 41, and 59:

Mahany et al. disclose wherein generating a confidence value for each of a plurality available data rates using the received signal quality value and the packet loss indicator value (col. 16 lines 4-9 recite the selection of data rate being based upon average value of signal strength, col. 17 lines 5-13 recite selection of data rate being based on error percentage above a threshold level clearly reads on the confidence value for each of a plurality available data rates as claimed).

Regarding claims 16-18, 34-36, 52-54, and 70-72:

Mahany et al. disclose decreasing the selected data rate in response to the packet loss indicator value increasing as in claims 16, 34, 52, 70: wherein said decreasing comprises decreasing the selected data rate in response to data rate values in a table indexed by available data rates and packet loss indicator values as in claims 17, 35, 53, 71; and selecting a second data rate value directly from the packet loss indicator value in response to the received signal quality value falling

below a minimum signal quality value as in claims 18, 36, 54, 72 (col. 17 lines 5-13 recite comparing number of errors against threshold for selecting the 9600 baud operation and if error is above this level the 4800 baud operation is used and col. 25 lines 59-67 recite the use of a stored table).

Mahany et al. disclose all the subject matter of the claimed invention with the exception of the data being packet as in claims 1, 19, 37, 55; wherein the received signal quality value comprises an received signal strength indicator RSSI value; wherein said generating the confidence value comprises solving an equation; updating the adjustment value in response to the packet loss indicator value indicating a maximum failure value corresponding to an excessive number of failed packet transmissions; and updating the adjustment value in response to the packet loss indicator value indicating a maximum success value corresponding to an excessive number of success packet transmissions as in claims 6-9, 12-13, 24-27, 30-32, 42-45, 48-49, 60-63, 66-67; increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data rate; and decreasing the transmit power in response to the selected data rate exceeding a second data rate as in claims 14, 32, 50, 68; wherein the second data rate is greater

than the first data rate as in claims 15, 33, 51, 69; and wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications as in claims 73-76.

Yavuz et al. from the same or similar fields of endeavor teach that it is known to provide the data being packet (col. 1 lines 54-61 recite the network being a packet data network); wherein the received signal quality value comprises an received signal strength indicator RSSI value; wherein said generating the confidence value comprises solving an equation; updating the adjustment value in response to the packet loss indicator value indicating a maximum failure value corresponding to an excessive number of failed packet transmissions; and updating the adjustment value in response to the packet loss indicator value indicating a maximum success value corresponding to an excessive number of success packet transmissions (Col. 5 lines 16-29 recite the signal quality being related to the transmit power clearly reads on the quality value comprising an RSSI value as claimed); increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data rate; and decreasing the transmit power in response to the selected data rate exceeding a second data rate; wherein the

second data rate is greater than the first data rate (col. 2 lines 5-19 recite the relationship between power and rate, i.e. higher transmit power is needed to support higher rate); and wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications (col. 1 line 62 to col. 2 line 4 recite the use of a plurality of operating standards clearly anticipate one of the IEEE 802.11 family of specifications as claimed).

Thus, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to provide data being packet; wherein the received signal quality value comprises an received signal strength indicator RSSI value; wherein said generating the confidence value comprises solving an equation; wherein said selecting the data rate comprises selecting a data rate associated with a positive confidence value; wherein said selecting the data rate comprises selecting a data rate associated with a lowest positive confidence value; updating the adjustment value in response to the packet loss indicator value indicating a maximum failure value corresponding to an excessive number of failed packet transmissions; and updating the adjustment value in response to the packet loss indicator value indicating a maximum success

value corresponding to an excessive number of success packet transmissions; increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data rate; and decreasing the transmit power in response to the selected data rate exceeding a second data rate; wherein the second data rate is greater than the first data rate; and wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications as taught by Yavuz et al. in the communications network of Mahany et al.

The use of data being packet; wherein the received signal quality value comprises an received signal strength indicator RSSI value; wherein said generating the confidence value comprises solving an equation; updating the adjustment value in response to the packet loss indicator value indicating a maximum failure value corresponding to an excessive number of failed packet transmissions; and updating the adjustment value in response to the packet loss indicator value indicating a maximum success value corresponding to an excessive number of success packet transmissions; increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data rate; and decreasing the transmit power in response to the selected data rate exceeding a second

data rate; wherein the second data rate is greater than the first data rate; and wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications can be implemented by connecting the packet data network; including wherein the received signal quality value comprises an received signal strength indicator RSSI value; wherein said generating the confidence value comprises solving an equation; wherein said selecting the data rate comprises selecting a data rate associated with a positive confidence value; wherein said selecting the data rate comprises selecting a data rate associated with a lowest positive confidence value; updating the adjustment value in response to the packet loss indicator value indicating a maximum failure value corresponding to an excessive number of failed packet transmissions; and updating the adjustment value in response to the packet loss indicator value indicating a maximum success value corresponding to an excessive number of success packet transmissions; increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data rate; and decreasing the transmit power in response to the selected data rate exceeding a second data rate; wherein the second data rate is greater than the first data rate; and wherein the transmitted

packets and received packets comply with one of the IEEE 802.11 family of specifications of Yavuz et al. to the network of Mahany et al.

The motivation for using a packet data network; including wherein the received signal quality value comprises an received signal strength indicator RSSI value; wherein said generating the confidence value comprises solving an equation; updating the adjustment value in response to the packet loss indicator value indicating a maximum failure value corresponding to an excessive number of failed packet transmissions; and updating the adjustment value in response to the packet loss indicator value indicating a maximum success value corresponding to an excessive number of success packet transmissions; increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data rate; and decreasing the transmit power in response to the selected data rate exceeding a second data rate; wherein the second data rate is greater than the first data rate; and wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications as taught by Yavuz et al. in the mobile communication system and method of Mahany et al. being that it provides the desirable added feature of a packet network for

communication; and more efficiency for the system since the system uses a standard family of specifications for transmitting and receiving packets.

Allowable Subject Matter

4. Claims 10-11, 28-29, 46-47, and 64-65 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Application/Control
Number: 10/734,440
Art Unit: 2616

Page 14

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shick C. Hom whose telephone number is 571-272-3173. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pham Chi can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control
Number: 10/734,440
Art Unit: 2616

Page 15

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SH SH


CHI PHAM
SUPERVISORY PATENT EXAMINER

1/21/08

FIG. 1

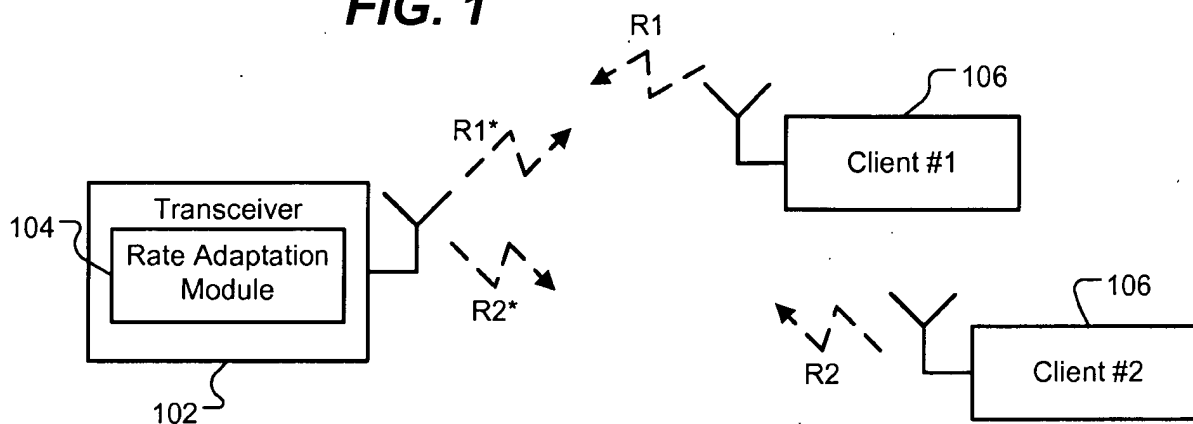


FIG. 2

